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Appropriate Reserves in the Health Care Sector

Dick W. Feenstra and G. Jan van Helden*

Som-theme E: Financial markets and institutions

Abstract

Organizations in the health care sector are increasingly managed and judged on the basis of economic criteria. At the same time they are faced with growing risks which necessitate 'appropriate' reserves. Various major risks are mentioned in this paper. Health care organizations are allowed to form provisions instead of reserves, for some of these risks. The conditions under which this is allowed are discussed, as are the criteria which indicate the differences between reserves and provisions. The main part of this paper consists of a critical description and analysis of two models which can be used to determine the 'appropriate' size of reserves of health care organizations.

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1. Introduction

There are a great number of health care institutions in the Netherlands. These institutions increasingly have to stand on their two feet (see for example Vereniging Academische Ziekenhuizen, 1993; Coopers & Lybrand, 1996). Funding methods are becoming more dependent on outputs, competition between health care providers is increasing and the organizations will run greater risks if they start using new treatment methods. Furthermore, the central government is withdrawing more and more as a guarantor and 'catcher' of the health care 'organizations' financial risks. They need sufficiently large reserves in order to become and stay financially independent. However, opinions tend to differ on the definition of 'sufficiently large'. The theory of finance provides hardly any insights into the best possible financing structure because that theory is not specifically geared to the nonprofit sector. In practice, the organizations therefore employ rules of thumb. It is often argued, without any convincing proof, that a reserve amounting to 5 per cent of the annual budget can be considered to be 'sufficient' for an organization in the non-profit sector[1]. The boards of non-profit organizations perceive this to be a low percentage, whereas the funding government thinks that 5 per cent is too high (Feenstra and Van Helden, 1995; Commissie Reserves Academische Ziekenhuizen, 1998).

This paper describes two models which may guide discussions in the non-profit sector on the question of what size of reserves[2] can be termed

'sufficient'. We call this size the 'appropriate' size of reserves. The paper is structured as follows. Section 2 contains a risk analysis concerning organizations in the health care sector. The boundaries between reserves and provisions are continuously debated; section 3 describes the essential differences between these concepts, as well as recent developments in relevant international regulations. The main part of this paper is section 4, which describes two models which can be used to determine the appropriate size of reserves. The two models for determining the appropriate size of reserves can also be used in other nonprofit sectors, such as universities or museums, although several particular considerations have to be taken into account then. This paper ends with a critical discussion of the strenghts and weaknesses of the two models.

2. Risks and reserves

Both in absolute and in relative terms, the equity part in the balance sheet of health care organizations is only small. Usually one finds a very small amount of issued capital and a few kinds of reserves, of which the so-called "reserve for acceptable costs" is the largest[3] (see Aukes and Maat, 1997). The main goals of the reserves are:

- to function as a buffer against general risks in order to safeguard the continuity of the organization from unforeseen financial setbacks;
- to function as an equalization account in which operating surpluses and deficits are entered;
- to make explicit those proposed spendings which are not yet external liabilities (expressed as 'appropriated reserves'[4]).

The availability of reserves might contribute to the continuity of health care organizations. Generally speaking, the larger the reserves are, the easier it is to adapt after more or less serious setbacks. If an institution does not have a sufficiently large buffer of reserves, it will often be forced, usually under pressure of time, to take far-reaching measures which may severely disrupt the rendering of services and the harmony in the organization. In addition, the size of its reserves affects its chances of borrowing capital, for example from banks and institutional investors. These lenders want to limit their risks with respect to repayment and interest payable as much as possible and therefore demand that borrowers should have a specific minimum amount of reserves. An increase in reserves will result in more opportunities to borrow capital and in lower risk mark-ups being charged by lenders.

The question remains what the size of the reserves should be. The answer to this question should be determined by the risks run or envisaged by an organization. Obviously, not all categories of organizations within the health care sector are faced with similar risks. Although there are general trends such as more influence from the market because the government is withdrawing from the health care sector, increasing competition between health care providers, and changes in funding models which have resulted in the growing importance of more standardized budgets, there are also differences between the specific risks in various segments of the health care sector. University hospitals, for example, have a unique range of functions and each of these functions has a unique risk profile. In addition, the range of functions and the risk profiles can be slightly different in each university hospital (Vereniging Academische Ziekenhuizen, 1993; Feenstra and Van Helden, 1995; see also section 4).

Apart from risks arising from differences in the range of functions, various other sources of risks can be mentioned, such as:

a. the statutory duty to provide care fairly often leads to overstretched budgets; any additional costs have to be borne by individual organizations;
b. the outcome of collective bargaining is also dependent on market forces, although there may not be enough resources available at the level of individual organizations; all this is complicated further by changes in social security costs, the fees of medical specialists, and the statutory duty of insurers to enter into contracts with health care providers;
c. organizations will be hit even harder by disappointing receipts and/or unforeseen expenses if they have inflexible cost structures and therefore need a lot of time to make adjustments.

This paper will discuss two models which aim to determine the appropriate size of reserves in health care organizations. Since these organizations are allowed to make provisions for some risks – and therefore no reserve has to be created for these risks – it is worthwhile to consider the relation between provisions and risks first.

3. Risks and provisions

In the balance sheet of an organization a distinction is made between the equity part and the liability part. In the Netherlands it is common practice to subdivide liabilities into debts and provisions. The distinction is based on the extent to which uncertainty is existent. A debt is a (nearly) certain liability; a provision is a liability with some uncertainty regarding the amount and the time due; both liabilities result from events and/or

transactions in the past. However, this difference is not always so clear-cut in actual practice. The formation of provisions is usually only allowed if it is certain or likely that a liability will be created and if it is also possible to make a reliable estimate of its size. The terms ‘likely’ and ‘reliable estimate’ can be interpreted in more than one way; therefore the difference between a debt (a certain liability of a certain size) and a provision is not always clear. Because provisions refer to uncertain liabilities (which can be reliably estimated), whereas reserves are primarily meant to serve as a buffer for general risks, they are fundamentally different. Provisions must therefore be shown separately in a balance sheet and must not be mixed with reserves.

In the Netherlands provisions include cost equalization accounts. In international circles, particularly the International Accounting Standards Committee (IASC), this interpretation is considered to be unacceptable. Basically, provisions increasingly resemble debts in international regulations, so that the subjectivity inherent in the formation of provisions is slowly eliminated (IAS 37, 1998). This trend is strikingly similar to the views prevalent in the Netherlands on the acceptability of allowing for provisions when taxable profit is determined[5]. Further limitation of the circumstances in which the formation of provisions is allowed is suggested in the recent statement IAS 37. The introduction of this proposal in anticipated Dutch legislation and regulations would result in a decrease in the total number of provisions and even in the disappearance of a number of types of provisions. In view of the frequency and range of existing provisions, this could have substantial consequences for Dutch reporting practices in profit-making as well as non-profit-making organizations. As far as university hospitals are concerned, an empirical study conducted by

us in 1995 suggests that these organizations sometimes decide to make provisions for unconvincing reasons. Furthermore, some of the university hospitals make a distinction between reserves and provisions which is not convincing either (Feenstra-Van Helden, 1995).

The question of the acceptable level of provisions made by an institution in the health care sector has been implicitly answered in this section. The level wholly depends on the organization's already existing liabilities which can be reliably estimated, even though their exact size and dates of payment are still uncertain. The formation of provisions will be justified if the organization does have liabilities of that kind.

4. Two models for the determination of appropriate reserves

This section will address two models for determining appropriate reserves in health care organizations. Section 4.1 deals with the Feenstra-Van Helden model, which particularly concerns university hospitals. Next, section 4.2 encompasses The Coopers & Lybrand model which has been developed for the health care sector in general.

4.1. *The Feenstra-Van Helden model*

Feenstra and Van Helden (1995) have developed a normative framework (model) which can be used to determine the reserve position of a university hospital in accordance with the board's wishes.

The functions of this model are:

a. to function as a starting-point for discussions on the sufficiency or insufficiency of the organization's ability to cope with any budgetary deficits;

b. to enable comparisons between the results of the model and the organization's actual reserve position at any time, and to enable any subsequent modification of the policy on reserves which is pursued.

Although the model has been developed primarily for and is geared to university hospitals, it may be useful in any other branch of the non-profit sector. Although the specifications of the institutions' functions will vary, as will the assessments of the financial risks involved in the various functions, the basic structure of the model will not have to be changed. It should be pointed out that the model is not only suitable for a specific sector as a whole but also for the individual organizations within that sector.

The model was structured as follows:

a. It was assumed that a university hospital is exposed to different risks related to the various functions it performs. Six functions were distinguished:
   - ordinary patients care
   - top clinical patients care
   - top specialist care
   - training
   - workplace for a Faculty of Medicine
   - development

b. After that, the extent and nature of the financial risks involved in each of the functions were determined. The risks were divided into five classes:
   - certainty in the short term as well as the long term (class 1);

- some uncertainty in the long term and certainty in the short term (class 2);
- uncertainty in the long term and reasonable certainty in the short term (class 3);
- uncertainty in the long term and some uncertainty in the short term (class 4);
- uncertainty in the short term as well as the long term (class 5).

Consultation of experts in the university hospital sector (i.e. top financial executives) resulted in the following risk classes for each of the functions:

- ordinary patients care: risk classes 2/3;
- top clinical patients care: risk classes 2/3;
- top specialist care: risk class 4;
- training: risk class 2;
- workplace for the Faculty of Medicine: risk class 3;
- development: risk class 5.

For each of these functions the budgetary share for all the university hospitals was calculated (based on: VAZ, 1993; VAZ = Vereniging van Academische Ziekenhuizen, which can be translated as the Society of University Hospitals).

c. Next, an attempt was made to determine the relative size of the reserves (as a percentage of the budget) for each of the risk classes distinguished under b. Since there are no clear causal relationships between risks and reserves, the reserves for each risk class are expressed as a margin. The following percentages were determined for the five risk classes mentioned under b: less than 5% (class 1); 6-10% (class 2); 11-15% (class 3); 16-20% (class 4); 21-30% (class 5).These margins of

percentual reserves were determined by considering other categories of non-profit organizations which bear risks that are similar to the functions in question of a university hospital. These so-called reference sectors are: universities (class 2), general hospitals and universities (classes 2 and 3), KEMA (i.e. Dutch quality control institute for electrical material and appliances) and TNO (i.e. Dutch organization for applied scientific research) (class 5). A reference sector for top specialist care (class 4) could not be found.

d. Finally, the average appropriate reserves were determined by multiplying the reserves for a function (as determined under c) by the portion of the budget (as calculated under b) for this function.

Table 1 shows the results of the above model for determining a reserve position. This table indicates that the reserves of the university hospitals as a whole should range between 9.6% and 16.8% of the annual budget. In 1994 the actual reserves averaged 6.9%, which suggests that the reserve position should be strengthened in the future. We will not discuss here whether the actual percentage (6.9%) is relatively low because some of the reserves were wrongly called provisions, although there is some evidence for this overestimation of provisions at the expense of reserves (Feenstra and Van Helden, 1995).

Changes in the portions of the budget mentioned in table 1 will have an effect on the appropriate reserve positions. Obviously, different risk assessments will also result in different appropriate reserve positions.

Table 1: The Feenstra-Van Helden model applied to the university hospitals as a whole (1994)

a. Functions	b. Portion of budget per function	c. Appropriate reserve per function	d. b x c
Ordinary patients care	45.4%	6-15% (class 2/3)	2.7-6.8%
Top clinical patients care	10.7%	6-15% (class 2/3)	0.6-1.6%
Top specialists care	22.3%	16-20% (class 4)	3.6-4.5%
Training	3.8%	6-10% (class 2)	0.2-0.4%
Workplace for the Faculty	12.1%	11-15% (class 3)	1.3-1.8%
Development	5.7%	21-30% (class 5)	1.2-1.7%
total	100%		9.6-16.8%

4.2 *The Coopers & Lybrand model*

Coopers & Lybrand's (1996) model for determining the necessary minimum size of reserves is also based on an analysis of the functions of reserves and provisions (cf. the summary given in the sections 2 and 3 of this paper). Also, where possible, comparisons are made with other sectors with similar risk profiles. The most essential point of the model is the following statement (p.7): 'The minimum size of reserves needed for a buffer against general risks is dependent on the estimated size of disappointing revenues, the flexibility of the existing cost structure, and the time needed for adjustments to costs'.

The model was structured as follows:

a. First, Coopers & Lybrand determined how much of the budget for acceptable costs of AWBZ institutions (i.e. institutions falling under the Medical Expenses Act) was generally intended for the following four cost categories:

- staff costs (75%);
- material costs (15%);
- capital charges not according to reimbursable regulations (5%);
- capital charges according to reimbursable regulations (5%).

b. After that, they determined the time needed by an organization to adjust itself, i.e. the organization as a whole, to financial setbacks concerning the cost categories mentioned under a. They assumed that the reaction times for the first three cost categories mentioned above were 2 years, 3 months, and 5 years respectively.

c. Next, they determined the weighted reaction time per percent financial setback. Based on the reaction times mentioned under a, this weighted reaction time is: 75% x 2 years + 15% x 0.25 year + 5% x 5 years = 1.8 years. This reaction time implies that an organization needs 1.8 years to decrease its costs to a new budget level.

d. Assuming that in the future the AWBZ-sector has to deal with budgetary setbacks ranging between 5% and 10%, the above will mean that the minimum reserve position should range between 9% (i.e. 5 x 1.8) and 18% (i.e. 10 x 1.8). This implies that during the period of adaptation of 1.8 years a reserve of 9% or 18% respectively will be available to cover the budgetary deficit.

e. In addition to the general risks in the AWBZ-sector, the model contains estimates of a few additional risks in three subsectors within the health care sector, namely:

- mental health care: 3 % because of the fund for health care reform which may be set up, and 5% because of budget limitation/flexibilization;
- care for disabled people: 4% because of the fund for health care reform which may be set up;
- nursing care : 4% because of the fund for health care reform which may be set up.

Assuming that not all additional risks occur simultaneously, only half of the risks are added to the percentages calculated under d. This will result in the following totals, i.e. the minimum percentages for the three subsectors mentioned above, if the budgetary setback is 5%:

- mental health care: 9 + 0.50 (3 + 5) = 13%
- care for disabled people: 9 + 0.50 x 4 = 11%
- nursing care: 9 + 0.50 x 4 = 11%.

Coopers & Lybrand argue that the percentages calculated under d are relatively low in comparison with those for other sectors such as housing corporations, the education sector, energy sector, and subsidized institutions. A governmental board, on the other hand, is of the opinion that the reserve position of organizations in the AWBZ-sector is rather good (Commissie Reserves Academische Ziekenhuizen, 1998). Coopers & Lybrand thinks that this opinion is based on an interpretation of reserves which is rather unusual to say the least (according to this board, reserves include provisions).

Coopers & Lybrand, too, wonder whether the actual reserve percentages may be due to the formation of unjustifiable, and therefore too high, provisions. The study states (p. 9): ‘We have found no indications that

the organizations have made unjustifiable and too high provisions. On the contrary, we are inclined to think that some of the organizations do not always make the provisions they need'. And: 'The level of provisions in the health care sector is relatively low, compared with that in other sectors,' (p. 9). Again, as in the section on the Feenstra-Van Helden model, we will not discuss here the problems involved in determining provisions. These problems have already been touched upon in section 3.

5. A comparison between the two models

Both models are simple logical structures and result in relatively similar appropriate reserve positions, provided that budgetary setbacks are assumed to range between 5% and 10%. In the Feenstra-Van Helden model the appropriate reserve positions range between 10% and 17% (rounded off) of the annual budget, and the results in the Coopers & Lybrand model range between 9% and 18%: Feenstra-Van Helden's model is more general in the sense that it is not dependent on budgetary setbacks. Neither model can be used to determine what level of provisions is required.

A recent report by the Commissie Reserves Academische Ziekenhuizen (i.e. a committee which made a study of reserves of university hospitals, (1998) argues that acceptable reserves should range between 8 and 12 per cent. Interestingly, this committee states that this standard lacks a scientific basis and that it is difficult to provide this basis. A maximum of 8 per cent of the budget for a health care organization (in this case a university hospital) is considered an appropriate buffer against the risks mentioned in the section 2. The committee justifies the margin between

8% and 12% as follows: the incentive to operate efficiently should not be lost when the 8% level is reached. After reaching this level, the organization is therefore allowed to add half of the annual surplus to the reserves and to cream off the other half. When the reserve percentage exceeds 12%, the whole annual surplus will be creamed off.

The two models described in this paper were developed primarily for the health care sector (university hospitals and AWBZ-organizations), but both can also be used in the non-profit sector in general. Because of their transparent structure, the models are suitable tools for a board of management or a supervisory board during discussions about the most appropriate reserve position in connection with proposed strategic changes in the range of functions or the cost structure of their organization. However, both models are clearly based on disputable suppositions. The weak point of the Feenstra-Van Helden model is the division of functions into risk classes and the subsequent determination of appropriate reserves per function on the basis of a comparison with reference sectors. The relevance of characteristics of reference sectors is debatable. In some cases, it may even be questionable whether there exist relevant reference sectors. The weak point of the Coopers & Lybrand model is the pivotal role of the ill-defined concept of reaction time. In addition, the reaction times for various cost categories are determined rather arbitrarily. The effects of a different division into risk classes and a different determination of desirable reserves per function, or a different division into reaction times have not been examined systematically, but these changes may lead to very different results. If so, this fact will harm the usefulness of the two models.

The main differences between the two models are the emphasis of functions and risk percentages in the first model and the focus on reaction times and various cost categories in the second model.

We will now critically review the similarities and differences of the two models for determining the appropriate reserves for health care organizations in a more constructive way. The main concept in this review will be the organization's ability to cope with unforeseen setbacks resulting from external or internal risks, i.e. its power of resilience or endurance. An adequate calculation of the external and internal risks will indicate the extent to which power of endurance is necessary. However, as will be argued below, the formation of a reserve is only one measure to guarantee this endurance. The other two are cost flexibility and organization flexibility.

Cost flexibility refers to the average time an organization needs to adapt its cost level to income setbacks. If, for instance, an organization has relatively high labour costs related to employees with a regular labour contract, its cost flexibility is low. If, on the contrary, an organization has many employees with a flexible labour contract, its cost flexibility will be high. Similarly, assets which are owned by the organization induce costs that are inflexible, whereas leased assets lead to comparatively more flexible costs. Cost flexibility is the main issue in the Coopers & Lybrand model. Obviously, it can be argued that the higher cost flexibility is, the lower the required reserves have to be.

Organization flexibility is related to the ability of an organization to substitute its available resources in another direction than the current one. Suppose, for example that a health care organization is faced with a substantial decrease in its funding for function X, whereas its funding for function Y can be considerably increased. Then, the organization's flexibility will be higher to the extent that superfluous resources from function X can be quickly removed to function Y, which asks for more resources. Generally speaking, the following relation might be existent: the higher the organization's flexibility, the lower its cost flexibility can be. And also: a higher organization flexibility may result in a lower need for reserve funds.

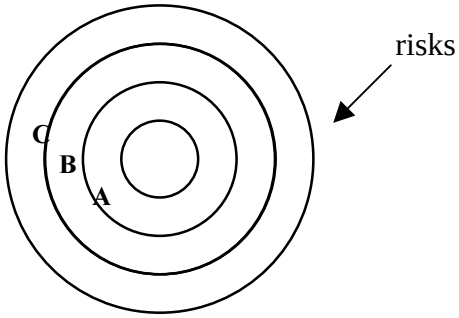

Figure 1: Relationships between organization flexibility, cost flexibility and reserves for a health care organization.

Legend:

A = organization flexibility

B = cost flexibility

C = reserves

Figure 1 should be interpreted as follows: the larger the risk, the larger the circle as a whole must be; A can be increased at the expense of C, given B and B can be increased at the expense of C, given A.

The Feenstra-Van Helden model encompasses a framework for calculating the risks of a health care organization, as well as for translating these risks into an appropriate level of the reserve funds. This model does not pay attention to cost flexibility and organization flexibility. The Coopers & Lybrand model establishes the cost flexibility of the organization – given the risks – and translates these into appropriate reserve funds. This model may be enriched by relating the reaction terms of the cost components to the organization flexibility. Evidently, none of these models provides a complete insight into the relationship between risks on the one hand and cost flexibility, organization flexibility and appropriate reserve funds on the other hand. Figure 1 gives a picture of these interdependencies. The total power of endurance of an organization will be dependent upon its external and internal risks. This power can take shape in various measures, i.e. cost flexibility, organization flexibility and reserves which can be regarded as communicating vessels. These three measures are depicted as concentric circles in figure 1, and the total power of endurance equals the surface area of the total circle.

It might be advisable to use both models simultaneously. The models could be of great benefit to organizations because they would enable the management to discuss appropriate reserves among themselves, or with external parties, in a well-structured manner.

Notes

[1] Interestingly, the reserve is related to the annual budget instead of the balance sheet total. Comparisons between organizations are less well-founded if the balance sheets of the organizations are compared, because the assets of the organizations may differ widely in age. Comparisons based on annual budgets do not have this drawback because annual budgets are determined more objectively.

[2] Other names are ‘adequate’ size, ‘desirable size, ‘permissible’ size (Feenstra and Van Helden, 1996).

[3] This “reserve for acceptable costs” is an equalization account in which operating surpluses and deficits are entered.

[4] In the Netherlands these reserves are called “bestemmingsreserves”.

[5] The Dutch do not recognize the concept of contingent liabilities, as far as this concept refers to existent liabilities which do not comply with the rules of accounting for provisions.

References

Aukes, J.J. Maat, 1997, Non-profitorganisaties, in: M.N. Hoogendoorn, J. Klaassen, F. Krens (eds.), *Externe Verslaggeving in theorie en praktijk, deel 2,* chapter 46, 's-Gravenhage: Delwel, pp. 1069-1090.

Commissie Reserves Academische Ziekenhuizen, 1998, *Gepaste Reserves,* 's-Gravenhage, 39 pp.

Coopers & Lybrand, 1996, *Vermogensgroei bij AWBZ-instellingen,* Utrecht: Coopers & Lybrand.

Feenstra, D.W., G.J. van Helden, 1995, *Reserves & Voorzieningen,* Utrecht: Vereniging Academische Ziekenhuizen, 58 pp.

Feenstra, D.W., G.J. van Helden, A. Verrijn Stuart, 1996, Reserves en voorzieningen in de jaarrekening van academische ziekenhuizen, *Tijdschrift voor Bedrijfsadministratie,* 100, 1186/1187, pp. 25-31.

Hoogendoorn, M.N., 1997, *Voorzieningen in de jaarrekening,* 's-Gravenhage: Delwel.

International Accounting Standards Committee, 1998, *IAS 37: Provisions, Contingent Liabilities and Contingent Assets,* Londen: IASC.

Vereniging Academische Ziekenhuizen, 1993, *Bepaald Betaalbaar,* Utrecht: Vereniging Academische Ziekenhuizen.